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PATENT APPLICATION

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IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): **Zhichen XU et al.**

Confirmation No.: 6116

Application No.: 10/767,075

Examiner: Hieu T. HOANG

Filing Date: **January 30, 2004**

Group Art Unit: **2452**

Title: DETERMINING LOCATION INFORMATION FOR A NODE IN A NETWORK USING AT LEAST ONE LOCAL LANDMARK NODE

Mail Stop Appeal Brief-Patents
Commissioner For Patents
PO Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF APPEAL BRIEF

Transmitted herewith is the Appeal Brief in this application with respect to the Notice of Appeal filed on November 12, 2009 .

☒ The fee for filing this Appeal Brief is $540.00 (37 CFR 41.20).

☐ No Additional Fee Required.

(complete (a) or (b) as applicable)

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136(a) apply.

☐ (a) Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)-(d)) for the total number of months checked below:

☐ 1st Month $130	☐ 2nd Month $490	☐ 3rd Month $1110	☐ 4th Month $1730

☐ The extension fee has already been filed in this application.

☒ (b) Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

Please charge to Deposit Account 08-2025 the sum of $ 540 . At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees.

Respectfully submitted,

Zhichen XU et al.

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APPEAL BRIEF - PATENTS

Sir:

This is an Appeal Brief in connection with the decisions of the Examiner in a Final Office Action mailed August 12, 2009, and in connection with the Notice of Appeal filed on November 12, 2009.

It is respectfully submitted that the present application has been at least twice rejected.

Each of the topics required in an appeal brief and a Table of Contents are presented herewith and labeled appropriately.

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(1) Real Party in Interest

The real party in interest is Hewlett-Packard Development Company, L.P.

(2) Related Appeals and Interferences

The Appellant is unaware of any appeals or interferences related to this case.

(3) Status of Claims

Claims 15, 16, 18, and 28-30 are canceled.

Claims 1-14, 17, 19-27, and 31 are pending in the present application and stand rejected.

Pursuant to 37 C.F.R. § 41.37, the Appellant hereby appeals the Examiner's decision finally rejecting all of the pending claims to the Board of Patent Appeals and Interferences. Therefore, claims 1-14, 17, 19-27, and 31 of this application are appealed.

(4) Status of Amendments

No amendment was filed subsequent to the Final Office Action dated August 12, 2009.

A copy of the claims at issue on appeal is attached as the Claims Appendix.

(5) Summary of Claimed Subject Matter

Claims 1, 19, 21, and 25 are the independent claims in this appeal. It should be understood that the citations below to the original disclosure as providing support for the claimed features are merely exemplary and do not limit the claim features to only those citations.

Claim 1

1. (Previously Presented) A method (Fig. 5) of determining location information for a computer system node (10 in Fig. 1) in a network, the method comprising:

determining first distances from the node (10) to a set of global landmark nodes (step 501 in Fig. 5; global nodes GL1 and GL2 in Fig. 1; *Specification*, page 15 lines 6-8);

determining second distances from the node (10) to a set of local landmark nodes proximally located to the node (step 502 in Fig. 5; local nodes LL1 and LL2 in Fig. 1; *Specification*, page 15 lines 9-12), wherein the set of local landmark nodes are different than the set of global landmark nodes and the set of landmark nodes are located in routing paths between the node and the global landmark nodes (*Specification*, page 6 lines 13-16, page 9 lines 14-21); and

determining location information for the node (10) based on the first distances and the second distances (step 503 in Fig. 5; *Specification*, page 16, lines 5-8).

Claim 19

19. (Previously Presented) A computer system node (10 in Fig. 1) in a network comprising:

means (10; *Specification*, page 18 lines 1-4; Fig. 7) for determining first distances from the node to a set of global landmark nodes (global nodes GL1 and GL2 in Fig. 1; *Specification*, page 15 lines 6-8, "the node 10 determines the distances to the global landmark nodes in the network 100");

means (10; *Specification*, page 18 lines 1-4; Fig. 7) for determining second distances from the node (10) to a set of local landmark nodes proximally located to the node and the set of global landmark nodes (local nodes LL1 and LL2 in Fig. 1; *Specification*, page 15 lines 9-12, "the node 10 determines distances to local landmark nodes in proximity to the node 10"), wherein the set of local landmark nodes are different than the set of global landmark nodes and the set of landmark nodes are located in routing paths between the node and the global landmark nodes (*Specification*, page 6 lines 13-16, page 9 lines 14-21); and

means (10; *Specification*, page 18 lines 1-4; Fig. 7) for determining location information for the node (10) based on the first distances and the second distances (*Specification*, page 16, lines 5-8).

Claim 21

21. (Previously Presented) A computer system (system 700 in Fig. 7) operable to connect to a peer-to-peer network, the computer system comprising:

a processor (702) operable to determine a physical location of the computer system (700 in Fig. 7 which is equivalent to node 10 in Fig. 1) in the peer-to-peer network by determining distances to a set of global landmark nodes (GL1, GL2 in Fig. 1) and a set of local landmark nodes (LL1, LL2 in Fig. 1) proximally located to the computer system in the peer-to-peer network (*Specification*, page 18 lines 1-18), wherein the set of local landmark nodes are different than the set of global landmark nodes and the set of landmark nodes are located in routing paths

between the node and the global landmark nodes (*Specification*, page 6 lines 13-16, page 9 lines 14-21); and

a memory (706) operable to store location information associated with the physical location for the computer system (*Specification*, page 19 lines 3-6).

Claim 25

25. (Previously Presented) Computer software embedded on a computer storage device (memory 706 in Fig. 7; method in Fig. 5), the computer software comprising instructions performing:

determining first distances from the node (10 in Fig. 1 which is equivalent to 700 in Fig. 7) to a set of global landmark nodes (step 501 in Fig. 5; global nodes GL1 and GL2 in Fig. 1; *Specification*, page 15 lines 6-8);

determining second distances from the node (10 in Fig. 1 which is equivalent to 700 in Fig. 7) to a set of local landmark nodes proximally located to the node (step 502 in Fig. 5; local nodes LL1 and LL2 in Fig. 1; *Specification*, page 15 lines 9-12), wherein the set of local landmark nodes are different than the set of global landmark nodes and the set of landmark nodes are located in routing paths between the node and the global landmark nodes (*Specification*, page 6 lines 13-16, page 9 lines 14-21); and

determining location information for the node (10 in Fig. 1; 700 in Fig. 7) based on the first distances and the second distances (step 503 in Fig. 5; *Specification*, page 16, lines 5-8).

(6) Grounds of Rejection to be Reviewed on Appeal

A. Whether claims 1-20 were properly rejected under 35 U.S.C. §101.

B. Whether claims 1, 10, 11, 17, 19, 21, and 25 were properly rejected under 35 U.S.C. §112, second paragraph.

C. Whether claims 1-6, 8-11, 14, 19-27, and 31 were properly rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,937,569 to Sarkar et al. (hereinafter "Sarkar") in view of article "Building Topology-Aware Overlays using Global Soft-State" by Xu et al. (hereinafter "Xu").

D. Whether claims 7, 12, 13, and 17 were properly rejected under 35 U.S.C. §103(a) as being unpatentable over Sarkar in view of Xu, and in further view of US Published Patent Application No. 2001/0034793 to Madruga et al. (hereinafter "Madruga").

(7) Arguments

A. The rejection of claims 1-20 under 35 U.S.C. §101 should be reversed.

- Claims 1-18:

Claims 1-18 were rejected under 35 U.S.C. 101 because, according to the Examiner, the method in independent claim 1 is broad enough that the claim could be completely performed mentally, verbally, or without a machine. This rejection should be reversed for at least the following reasons.

Independent claim 1 recites a "method of determining location information for a computer system node in a network." Thus, it is clear from the claim that the method is performed by the computer system node in a network, not mentally or verbally by a person.

Furthermore, claim 1 recites the steps of "determining first distances from the node to a set of global landmark nodes" and "determining second distances from the node to a set of local landmark nodes." Inherently, these steps can only be performed by a computer, not mentally or verbally by a person. The Examiner asserts that these steps can be completely performed mentally or verbally by a person. However, it is not clear how a person can possibly mentally or verbally determine the distances between a node (a computer) and a set of nodes globally located in a computer network. Therefore, the method in independent claim 1 is performed by a computer system. Accordingly, reversal of the rejection of claims 1-18 under 35 U.S.C. 101 is respectfully requested.

- Claims 19-20:

Claims 19-20 were rejected under 35 U.S.C. 101 for being directed to non-statutory subject matter because, as asserted by the Examiner, the means for carrying out the steps in the claim body of claim 19 are read as software modules. This rejection should be reversed because the preamble of the claim 19 recites a "computer system node in a network." The specification on page 18, lines 1-4 describes the node as a computer. Therefore, claims 19 and 20 are tied to a machine and are statutory. Furthermore, as described above, the specification on page 18, lines 1-4 describes the claimed means as a computer system with a processor. Thus, the claimed means include a machine and are statutory.

B. The rejection of claims 1, 10, 11, 17, 19, 21 and 25 under 35 U.S.C. §112, 2nd paragraph should be reversed.

- Claims 1, 19, 21 and 25:

Claims 1, 19, 21 and 25 were rejected under 35 U.S.C. 112, second paragraph because, according to the Examiner, "a set of landmark nodes" in the phrase "*a set of landmark nodes* are located in routing paths between the node and the global landmark nodes" is unclear as to which set of landmark nodes (local or global) Appellants refer to. Appellants respectfully submit that "a set of landmark nodes" is meant to be "a set of **local** landmark nodes." This is an inadvertent omission. However, it is obvious that "a set of landmark nodes" should be "a set of local landmark nodes" because from Fig. 1, the local landmark nodes LL1, LL2 are located in the

routing paths between the node 10 and the global landmark nodes GL1, GL2. Moreover, from the language of the claims, it is obvious that "a set of landmark nodes" refers to the local landmark nodes, because the global landmark nodes would not make sense in that phrase. The Examiner seems to correctly interpret "a set of landmark nodes" recited in these claims as "a set of local landmark nodes" because that is how the Examiner rejects the claims based on Sarkar (See *Final Office Action*, page 7, lines 1-2). Therefore, it is clear that "a set of landmark nodes" in claims 1, 19, 21 and 25 is a set of local landmark nodes.

- Claims 10 and 11:

Claims 10 and 11 were rejected under 35 U.S.C. 112, second paragraph because, as asserted by the Examiner, the phrase "randomly selecting a predetermined number of nodes" can mean no selection at all or selecting zero nodes. However, that interpretation of the claims is respectfully traversed. The phrase "randomly selecting a predetermined number of nodes" simply means a predetermined number of nodes are selected at random or in no particular order. Furthermore, claim 9, from which claim 10 depends, recites "selecting a predetermined number of nodes." The Examiner did not interpret the recitation in claim 9 as no selection as the Examiner did with claim 10. Thus, it appears that the Examiner interpreted the word "randomly" as "no selection at all". This is an unreasonable interpretation because claim 9 clearly recites "selecting."

- Claim 17:

Claim 17 was rejected under 35 U.S.C. 112, second paragraph because, as asserted by the Examiner, the word "some" can be zero or some unknown quantity and therefore making the claim vague. This assertion is respectfully traversed. The word "some" is commonly known as more than one. Thus, the word "some" may be broad but not indefinite. Therefore, claim 17 may be broad but not indefinite, as asserted by the Examiner. Accordingly, the rejection of claim 17 is respectfully requested to be reversed.

C. The rejection of claims 1-6, 8-11, 14, 19-27, and 31 under 35 U.S.C. §103(a) as being unpatentable over Sarkar in view of Xu should be reversed.

The test for determining if a claim is rendered obvious by one or more references for purposes of a rejection under 35 U.S.C. § 103 is set forth in *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007):

> "Under §103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented." Quoting *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1 (1966).

According to the Examination Guidelines for Determining Obviousness Under 35 U.S.C. 103 in view of *KSR International Co. v. Teleflex Inc.*, Federal Register, Vol. 72, No. 195, 57526, 57529 (October 10, 2007), once the *Graham* factual inquiries are resolved, there must be a

determination of whether the claimed invention would have been obvious to one of ordinary skill in the art based on any one of the following proper rationales:

> (A) Combining prior art elements according to known methods to yield predictable results; (B) Simple substitution of one known element for another to obtain predictable results; (C) Use of known technique to improve similar devices (methods, or products) in the same way; (D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results; (E) ''Obvious to try''—choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success; (F) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations would have been predictable to one of ordinary skill in the art; (G) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention. *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007).

Furthermore, as set forth in *KSR International Co. v. Teleflex Inc.*, quoting from *In re Kahn*, 441 F. 3d 977, 988 (CA Fed. 2006), "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasonings with some rational underpinning to support the legal conclusion of obviousness."

Furthermore, as set forth in MPEP 2143.03, to ascertain the differences between the prior art and the claims at issue, "[a]ll claim limitations must be considered" because "all words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385.

If the above-identified criteria and rationales are not met, then the cited references fail to render obvious the claimed invention and, thus, the claimed invention is distinguishable over the cited references.

- **Claims 1-6, 8-11, 14, 19-27, and 31:**

Claims 1-6, 8-11, 14, 19-27, and 31 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sarkar in view of Xu. This rejection should be reversed for at least the following reasons.

- Independent Claim 1:

Independent claim 1 recites,

> A method of determining location information for a computer system node in a network, the method comprising:
>
> determining first distances from the node to **a set of global landmark nodes**;
>
> determining second distances from the node to **a set of local landmark nodes** proximally located to the node, wherein the set of local landmark nodes are different than the set of global landmark nodes and **the set of landmark nodes are located in routing paths between the node and the global landmark nodes**; and
>
> **determining location information for the node based on the first distances and the second distances.**

Thus, claim 1 recites a plurality of global landmark nodes and a plurality of local landmark nodes. Claim 1 also recites that the **local** landmark nodes are located in the routing paths between the node and the global landmark nodes (Note that as discussed above, the word "local" was inadvertently omitted in claims 1, 19, 21 and 25 but obviously inherent in view of the language in the claim and Fig. 1). In addition, claim 1 recites that the determining of location information for the node is based on both the first distances and the second distances, wherein the first distances are distances between the node and the global landmark nodes, and the second

distances are distances between the node and the local landmark nodes. Sarkar in view of Xu fails to teach or suggest at least the claimed features recited above for at least the following reasons.

Sarkar discloses in Fig. 2 a system for determining a position of an endpoint 60 in a network 10. More specifically, in Fig. 2 of Sarkar, the network 10 includes a first landmark 160, a second landmark 170, and a central processor 100 connected to the endpoint 60. In operation, when the endpoint 60 is connected to the central processor 100, the processor 100 sends a list of landmarks (160, 170) in the network 10 to the endpoint 60 (col. 5, lines 31-42). Upon receiving the list of landmarks 160, 170 in the network 10, the endpoint 60 determines the distances between itself and each of the landmarks 160, 170 (col. 6, lines 1-4). To determine the distance between the endpoint 60 and the first landmark 160, the endpoint 60 uses a direct communication path 520 in Fig. 2 (col. 6, lines 16-20). However, to determine the distance between the endpoint 60 and the second landmark 170, the endpoint 60 is required to use two communication paths 530 and 540 via router 180 in Fig. 2 (col. 6, lines 36-39). After determining the distances, the endpoint 60 transmits the list of determined distances to the processor 100 (col. 6, lines 44-63). The processor 100 then uses this list to allocate resources to the endpoint 60 from the closest landmarks, in order to minimize communication time (col. 6, lines 63-67).

As such, Sarkar fails to teach or suggest a set of local landmark nodes being located in the routing paths between the node and the global landmark nodes, as recited in claim 1. In the Final Office Action, the Examiner asserts that the "local" landmark 160 is located in the routing path between the endpoint 60 and the "global" landmark 170 (See *Final Office Action*, page 7,

lines 1-2). However, that assertion is respectfully traversed. First, the landmark 160 is not in the routing path between the endpoint 60 and the landmark 170, as proposed by the Examiner. As discussed above, Sarkar discloses in col. 6, lines 36-39 that the endpoint 60 is **required** to use the communication paths 530 and 540 to determine the distance and latency from the endpoint 60 to the landmark 170. Thus, the router 180, not the landmark 160, is the element that is located in the routing path between the endpoint 60 and the landmark 170. As shown in Fig. 2 of Sarkar, elements 160 and 170 are landmark nodes that the endpoint 60 determines the distances from, and the router 180 is not a landmark node. Thus, the router 180 is not and cannot be a local landmark node as recited in claim 1. Accordingly, Sarkar fails to teach or suggest local landmark nodes located in the routing paths between the node and the global landmark nodes, as recited in claim 1.

Sarkar also fails to teach or suggest a plurality of global landmark nodes and a plurality of local landmark nodes, as recited in claim 1. Instead, Sarkar discloses only one global landmark node (landmark 170) and one local landmark node (160), assuming the landmark 160 is a "local" landmark node and the landmark 170 is a "global" landmark node as recited in claim 1. There is no teaching or suggestion in Sarkar for duplicating the landmarks 160 and 170 into a plurality of landmarks 160 and a plurality of landmarks 170, respectively.

In the Final Office Action, the Examiner asserts that the landmark 170 is interpreted as "a set of global landmark nodes" and the landmark 160 as "a set of local landmark nodes" (See *Final Office Action*, page 6). The Examiner also asserts that "a set of nodes" could mean one node. However, those assertions are respectfully traversed. As discussed above, claim 1 clearly

recites a plurality of global landmark nodes and a plurality of local landmark nodes because claim 1 recites a plurality of first distances and a plurality of second distances. Therefore, "a set of global landmark nodes" must be more than one global landmark node and "a set of local landmark nodes" must be more than one local landmark node. Accordingly, the landmark 170 in Sarkar is not a set of global landmark nodes, and the landmark 160 is not a set of local landmark nodes, as asserted by the Examiner.

Finally, Sarkar fails to teach or suggest "determining location information for the node based on **the first distances and the second distances**," recited in claim 1. In the Final Office Action, the Examiner correctly admits that Sarkar fails to teach or suggest this claimed feature (See *Final Office Action*, page 7). However, the Examiner asserts that Xu teaches this claimed feature. That assertion is respectfully traversed for at least the following reasons.

Xu discloses a method for discovering a node closest to a particular landmark node by using the distances and roundtrip times (RTTs) of the nodes locally located within a landmark clustering (See *Xu*, the Abstract). More specifically, Xu discloses using landmark clustering as a pre-selection process to locate nodes that are close to each other in a topology and then measuring the RTTs to identify the node closest to the particular landmark (See *Xu*, page 1, right column, last paragraph and page 2, left column). As an example, Xu indicates, "when guided by landmark clustering, 20-30 RTT measurements can be enough to locate the closest node to a particular node in a topology with approximately 10,000 nodes." *Id.* As such, Xu uses only the local distances of the nodes within a landmark clustering to locate the closest node to a particular landmark. Xu fails to teach or suggest using any global distances or distances across multiple

landmark clusters to locate the closest node. Accordingly, Xu fails to teach or suggest "determining location information for the node based on the first distances and the second distances," recited in claim 1, wherein the first distances are global distances between the node and the global landmark nodes. Thus, Xu fails to cure the deficiencies of Sarkar.

For at least the foregoing reasons, the Office Action has failed to establish that independent claim 1 is *prima facie* obvious in view of the combined disclosures contained in Sarkar and Xu, as proposed in the Office Action. Therefore, reversal of the rejection of independent claim 1 and allowance of the claim is respectfully requested.

- Independent Claims 19, 21, and 25:

Independent claims 19, 21, and 25 recite features similar to those of independent claim 1 as discussed above. Thus, independent claims 19, 21, and 25 are also believed to be allowable over the cited documents of record for at least the same reasons as set forth to independent claim 1 above. It is therefore respectfully requested that the rejection of independent claims 19, 21, and 25 be reversed, and these claims be allowed.

- Dependent Claims 2-6, 8-11, 14, 20, 22-24, 26-27, and 31:

Claims 2-6, 8-11, 14, 20, 22-24, 26-27, and 31 are dependent from one of independent claims 1, 19, 21 and 25. Thus, they are also believed to be allowable over the cited documents of record for at least the same reasons as set forth to independent claims 1, 19, 21 and 25 above. It

is therefore respectfully requested that the rejection of claims 2-6, 8-11, 14, 20, 22-24, 26-27, and 31 be reversed, and these dependent claims be allowed.

D. The rejection of claims 7, 12, 13, and 17 under 35 U.S.C. §103(a) as being unpatentable over Sarkar in view of Xu and Madruga should be reversed.

Claims 7, 12, 13, and 17 are dependent from independent claim 1. As discussed above, the proposed combination of Sarkar in view of Xu fails to disclose all of the features of independent claim 1. In setting forth the rejection of claims 7, 12, 13, and 17 the Examiner has not and cannot reasonably assert that the disclosure contained in Madruga makes up for any of the deficiencies with respect to the proposed combination. Accordingly, even assuming for the sake of argument that one of ordinary skill in the art were somehow motivated to modify the proposed combination of Sarkar in view of Xu with the disclosure contained in Madruga, the proposed modification would still fail to yield all of the features of independent claim 1.
For at least the foregoing reasons, the Examiner has failed to establish that claims 7, 12, 13, and 17 are *prima facie* obvious in view of the combined disclosures contained in Sarkar, Xu and Madruga, as proposed by the Examiner. Therefore, reversal of the rejection of claims 7, 12, 13, and 17 and allowance of these claims are respectfully requested.

(8) Conclusion

For at least the reasons given above, the rejection of claims 1-14, 17, 19-27, and 31 should be reversed and these claims allowed.

Please grant any required extensions of time and charge any fees due in connection with this Appeal Brief to deposit account no. 08-2025.

Respectfully submitted,

Dated: January 12, 2010

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(9) Claim Appendix

1. (Previously Presented) A method of determining location information for a computer system node in a network, the method comprising:

determining first distances from the node to a set of global landmark nodes;

determining second distances from the node to a set of local landmark nodes proximally located to the node, wherein the set of local landmark nodes are different than the set of global landmark nodes and the set of landmark nodes are located in routing paths between the node and the global landmark nodes; and

determining location information for the node based on the first distances and the second distances.

2. (Previously Presented) The method of claim 1, wherein determining location information comprises determining location information associated with a physical location of the node in the network based on the first distances and the second distances.

3. (Previously Presented) The method of claim 1, wherein determining location information comprises generating a landmark vector including the first distances and the second distances.

4. (Original) The method of claim 3, further comprising transmitting the landmark vector to at least one other node in the network storing landmark vectors for a plurality of nodes in the network.

5. (Original) The method of claim 3, further comprising:

hashing at least a portion of the landmark vector to identify a location in an overlay network for storing the landmark vector, wherein the overlay network is a logical representation of the network; and

transmitting the landmark vector to a node at the identified location to store the landmark vector.

6. (Previously Presented) The method of claim 1, wherein determining first distances from the node to the set of global landmark nodes comprises:

transmitting a probe packet to each global landmark node; and

measuring round-trip-time to each global landmark node using the transmitted probe packet.

7. (Previously Presented) The method of claim 6, wherein determining second distances from the node to the set of local landmark nodes comprises:

receiving an acknowledge message from each local landmark node receiving the probe packet; and

determining the second distances to the set of local landmark nodes in response to receiving each acknowledge message.

8. (Previously Presented) The method of claim 1, wherein determining second distances comprises:

selecting a plurality of the local landmark nodes within a predetermined distance from the node; and

determining distances to each of the plurality of local landmark nodes.

9. (Original) The method of claim 1, further comprising selecting a predetermined number of nodes in the network to be global landmark nodes and local landmark nodes based on the number of nodes in the network.

10. (Original) The method of claim 9, wherein selecting a predetermined number of nodes in the network to be global landmark nodes comprises randomly selecting a predetermined number of nodes in the network to be global landmark nodes.

11. (Original) The method of claim 9, wherein selecting a predetermined number of nodes in the network to be local landmark nodes comprises randomly selecting a predetermined number of nodes in the network to be local landmark nodes.

12. (Original) The method of claim 9, wherein selecting a predetermined number of nodes in the network to be local landmark nodes comprises:

identifying nodes located near at least one gateway router or including the at least one gateway router in the network; and

selecting at least one of the identified nodes to be a local landmark node.

13. (Original) The method of claim 9, wherein a number of global landmark nodes in the network is less than a number of local landmark nodes in the network.

14. (Previously Presented) The method of claim 1, wherein determining first distances comprises determining distances to all of the global landmark nodes in the network.

15-16. (Canceled).

17. (Previously Presented) The method of claim 1, wherein at least some of the local landmark nodes are routers.

18. (Canceled).

19. (Previously Presented) A computer system node in a network comprising:

means for determining first distances from the node to a set of global landmark nodes;

means for determining second distances from the node to a set of local landmark nodes proximally located to the node and the set of global landmark nodes, wherein the set of local

landmark nodes are different than the set of global landmark nodes and the set of landmark nodes are located in routing paths between the node and the global landmark nodes; and

means for determining location information for the node based on the first distances and the second distances.

20. (Original) The node of claim 19, further comprising:

means for identifying a location in an overlay network for storing the location information using the location information, wherein the overlay network is a logical representation of the network; and

means for transmitting the location information to a node at the identified location to store the location information.

21. (Previously Presented) A computer system operable to connect to a peer-to-peer network, the computer system comprising:

a processor operable to determine a physical location of the computer system in the peer-to-peer network by determining distances to a set of global landmark nodes and a set of local landmark nodes proximally located to the computer system in the peer-to-peer network, wherein the set of local landmark nodes are different than the set of global landmark nodes and the set of landmark nodes are located in routing paths between the node and the global landmark nodes; and

a memory operable to store location information associated with the physical location for the computer system.

22. (Original) The computer system of claim 21, wherein the memory is operable to store location information for a plurality of nodes in the peer-to-peer network that are physically close to the computer system.

23. (Original) The computer system of claim 21, wherein the processor is operable to identify a location in an overlay network for storing the location information using the location information, wherein the overlay network is a logical representation of the peer-to-peer network.

24. (Original) The computer system of claim 21, further comprising a network interface operable to connect the computer system to the peer-to-peer network, wherein the computer system is operable to transmit the location information to the identified location in the overlay network via the network interface.

25. (Previously Presented) Computer software embedded on a computer storage device, the computer software comprising instructions performing:

determining first distances from the node to a set of global landmark nodes;

determining second distances from the node to a set of local landmark nodes proximally located to the node, wherein the set of local landmark nodes are different than the set of global

landmark nodes and the set of landmark nodes are located in routing paths between the node and the global landmark nodes; and

determining location information for the node based on the first distances and the second distances.

26. (Original) The computer software of claim 25, further comprising instructions performing:

identifying a location in an overlay network to store the location information using the location information, wherein the overlay network is a logical representation of the network.

27. (Original) The computer software of claim 25, wherein instructions performing identifying a location in an overlay network comprise instructions performing hashing the location information to identify a location in the overlay network to store the location information.

28-30. (Canceled).

31. (Previously Presented) The computer software of claim 25, wherein the local landmark nodes are located within a predetermined distance to the node.

(10) Evidence Appendix

None.

(11) Related Proceedings Appendix

None.